ABSTRACT OF THE PUBLICATION

The power transmission ability of a belt for high power transmission is predicted. A power transmission ability curve of the belt that does not depend on the layout relative to the pulleys is found, thereby to facilitate evaluation of the belt power transmission ability and designing of the transmission condition of a belt drive system. To this end, for the high power transmission belt, a relational expression between the WD factor which is the pressing force against pulleys per belt unit length and the ST factor which is the effective tension of the belt per unit contact length to the pulleys is found. Based on the relational expression, evaluation of the power transmission ability of the belt is conducted. The WD-ST relational expression becomes a power transmission ability curve which is inherent to the belt B but independent of the layout relative to the pulleys, therefore facilitating evaluation of the belt power transmission ability and designing of the transmission condition of the belt drive system.